

Lunar and Interplanetary Laser Ranging Session Summary

Chairs: Juergen Mueller and Tom Murphy

In the lunar laser ranging (LLR) and interplanetary laser ranging session, we had nine talks and two posters – dramatically up from a single talk two years ago. Sergei Kopeikin gave an invited talk about reference frames for lunar ranging analysis, with an emphasis on not misinterpreting gauge-dependent terms as physical effects. Tom Murphy reported on two years of APOLLO operation, showing high photon rates and evidence for one-millimeter performance. Liliane Biskupek presented recent efforts to understand earth orientation using 38 years of LLR data. Simone Dell'Agnello described (for Doug Currie) the science attainable by and tests related to emplacement of next-generation (large) corner cubes on the lunar surface. A trio of talks by Jan McGarry, Anthony Mallama, and Chris Clarke detailed the capabilities of one-way ranging to the lunar reconnaissance orbiter (LRO). The talks focused on technical parameters/capabilities, pointing strategies and verification, and scheduling/prediction logistics, respectively. Jerry Wiant described the preparations taking place at the McDonald Observatory for ranging to LRO – with the persistent theme that Randy Ricklefs has already done most of the software preparation. Finally, Maria Zuber spoke about the science deliverables one may achieve via interplanetary laser ranging, including the success stories of ranging to the MESSENGER and Mars Orbiter spacecraft, as well as plans for LRO. In addition, Wasilla Zerhouni and Tomasz Niedzielski displayed posters pertaining to using LLR for celestial pole determination, and the minimum duration necessary for sea level rise determination, respectively.